

R E M A R K S

Claims 3 and 4 were rejected under 35 USC 112, first paragraph because claim 3 recites “said equalizer is responsive to both transmission parameter values of said transmission channel and to multi-transmitting antennas encoding schema within said transmitter,” but according to the Examiner, the specification does not teach this limitation. Further according to the Examiner, “the specification only teaches, at best, at page 8, line 16-18, that the equalizer is responsive to ‘estimate of the transmission channel parameters’.”

The Examiner is correct that the specification teaches that the equalizer is responsive to transmission channel parameter **estimates**, and therefore claim 3 is amended to reflect this fact. As for the remainder of the Examiner’s rejection, applicants respectfully traverse.

The first word of the application’s title is “Equalization,” and it would indeed be surprising if the application did not teach anything about the receiver’s equalizer other than being responsive to transmission channel parameter estimates. In fact, in applicants’ view essentially the entirety of the specification addresses the equalization issue. Thus, the very first paragraph of the “Detailed Description” section ends with the sentence that the “design and operation of the equalizer/decoder ... is the subject of this disclosure.” The discussion continues, equation (3), for example, expressing the received signal in terms of the space-time encoder output of the transmitter and the parameters ( $h$ ) of the transmission channel. One immediately is aware that the input signal to receiver 20 is a function of the transmission channel parameters, and the data transmission schema at the multi-antenna transmitter. Applicants’ disclosure continues with the analysis of the received signal, and at page 6, line 16, it is mentioned that the equalizer needs to compensate for the intersymbol interference induced by the resolvable multipath receptions. The discussion continues that there are a number of equalization techniques, and that, alas, they suffer from a large number of equalizer states (see page 6, lines 26 et seq.). The specification notes that this disadvantage is particularly troublesome with the disclosed multi-antenna transmission schema (page 6, line 30). Still further in the specification, applicants teach that they disclose a reduced complexity approach, which uses the structure that is present in some trellis codes, and equation (8) relates the

structure of the symbols transmitted by the multi-antenna transmitter to that trellis code. Through the calculations that are disclosed in equations (9) through (14) and the accompanying text – which take into account the transmitted symbols schema – the received signal is decoded to obtain the “received signals by selecting as the transmitted signal that signal which minimized the equation (12) metric.” Page 8, lines 19-20.

Clearly the equations developed and disclosed in applicants’ specification, which culminate in the equation (12) metric, are tuned to, account for, and/or are based on the multi-transmitting-antennas encoding schema of transmitter 10. Therefore, the equalizer is properly defined is being responsive to “the multi-transmitting-antennas encoding schema.” Adding to this the Examiner’s admission that the specification teaches the equalizer being responsive to an estimate of the transmission channel parameters, and the amendment to claim 3 that adds the word “estimate,” it is respectfully submitted that claim 3 is fully supported by the specification, and is in compliance with 35 USC 112, first paragraph. Consequently, claim 4 is also in compliance with 35 USC 112, first paragraph.

In light of the above amendments and remarks, applicants respectfully submit that all of the Examiner’s rejections have been overcome. Reconsideration and allowance of claims 1-4 are hereby respectfully solicited.

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Respectfully,  
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